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		<a href="#">Jun 26, 1998</a>	<a href="#">Apr 22, 1999</a> *	<a href="#">May 19, 2000</a>	<a href="#">Jun 03, 2001</a>	
			<a href="#">Apr 28, 1999</a>	<a href="#">Jun 20, 2000</a>	<a href="#">Aug 01, 2001</a>	
			<a href="#">Oct 03, 1999</a> *	<a href="#">Aug 15, 2000</a>	<a href="#">Oct 19, 2001</a> *	
			<a href="#">Oct 13, 1999</a> *	<a href="#">Oct 18, 2000</a> *		
				<a href="#">Oct 19, 2000</a>		
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# PACIFIC

## Exchange Rate Service

### Retrieval Interface

To retrieve data, select the time period and output format options and check all the currencies you would like to include in the output. Then click on the "retrieve" button. This archive only contains historic exchange rate data until yesterday. Consult the [data availability chart](#) on the time periods for which data are available.

Exchange rates are vis-à-vis the Canadian Dollar.

Quotation	Time Period	Output Format
<input checked="" type="radio"/> volume notation e.g., ¥/\$, £/\$.  <input type="radio"/> price notation e.g., \$/¥ \$/£.	Start Date: <div style="display: flex; align-items: center;"> <input style="width: 40px; text-align: center;" type="text" value="1"/> <input style="width: 60px; text-align: center;" type="text" value="Jan"/> <input style="width: 60px; text-align: center;" type="text" value="1996"/> </div> End Date: <div style="display: flex; align-items: center;"> <input style="width: 40px; text-align: center;" type="text" value="31"/> <input style="width: 60px; text-align: center;" type="text" value="Dec"/> <input style="width: 60px; text-align: center;" type="text" value="1996"/> </div>	Format: <input style="width: 60px;" type="text" value="plain"/> Table Transposition <input style="width: 60px;" type="text" value="Day / Currency"/> Country identification: <input style="width: 60px;" type="text" value="ISO codes"/>
<b>Currencies</b>		
<input type="checkbox"/> American Dollars <input type="checkbox"/> Angolan Kwanzas <input type="checkbox"/> Argentinian Pesps <input type="checkbox"/> Australian Dollars <input type="checkbox"/> Austrian Schillings <input type="checkbox"/> Bahamian Dollars <input type="checkbox"/> Barbados Dollars <input type="checkbox"/> Belgian Francs <input type="checkbox"/> Bermudian Dollars <input type="checkbox"/> Brazilian Reals <input type="checkbox"/> British Pounds <input type="checkbox"/> Chilean Pesos <input type="checkbox"/> Chinese Renmimbi <input type="checkbox"/> Czech Koruna <input type="checkbox"/> Danish Kroner <input type="checkbox"/> Dominican Rep. Pesos <input type="checkbox"/> Dutch Guilders <input type="checkbox"/> East Caribbean Dollars <input type="checkbox"/> Egyptian Pounds <input type="checkbox"/> European Currency Units <input type="checkbox"/> Finnish Markka <input type="checkbox"/> French Francs <input type="checkbox"/> German Marks <input type="checkbox"/> Greek Drachmas	<input type="checkbox"/> Guatemalan Quetzales <input type="checkbox"/> Haitian Gourdes <input type="checkbox"/> Honduran Lempiras <input type="checkbox"/> Hong Kong Dollars <input type="checkbox"/> Hungarian Forint <input type="checkbox"/> Icelandic Krona <input type="checkbox"/> Indian Rupees <input type="checkbox"/> Indonesian Rupiah <input type="checkbox"/> Irish Punt <input type="checkbox"/> Israeli New Shekels <input type="checkbox"/> Italian Lira <input type="checkbox"/> Jamaican Dollars <input type="checkbox"/> Japanese Yen <input type="checkbox"/> Jordanian Dinars <input type="checkbox"/> Kenyan Schillings <input type="checkbox"/> Malawi Kwachas <input type="checkbox"/> Malaysian Ringgit <input type="checkbox"/> Mexican New Pesos <input type="checkbox"/> Mozambique Meticals <input type="checkbox"/> New Zealand Dollars <input type="checkbox"/> Nigerian Nairas <input type="checkbox"/> Norwegian Kroner <input type="checkbox"/> Pakistani Rupees <input type="checkbox"/> Peruvian New Soles	<input type="checkbox"/> Philippines Pesos <input type="checkbox"/> Polish Zloty <input type="checkbox"/> Portugese Escudo <input type="checkbox"/> Russian Rubles <input type="checkbox"/> Saudi Arabian Riyal <input type="checkbox"/> Special Drawing Rights <input type="checkbox"/> Singapore Dollars <input type="checkbox"/> South African Rand <input type="checkbox"/> South Korean Won <input type="checkbox"/> Spanish Pesetas <input type="checkbox"/> Sudanese Dinars <input type="checkbox"/> Swedish Krona <input type="checkbox"/> Swiss Francs <input type="checkbox"/> Taiwan Dollars <input type="checkbox"/> Thai Baht <input type="checkbox"/> Trinidad and Tobago Dollars <input type="checkbox"/> Turkish Lira <input type="checkbox"/> Venezuelan Bolivar  <div style="text-align: center; padding: 5px;"><i>Commodities</i></div> <input type="checkbox"/> Gold Ounce (New York) <input type="checkbox"/> Silver Ounce (New York) <input type="checkbox"/> Platinum Ounce (New York)

<input type="button" value="Reset"/>	<input type="button" value="Retrieve"/>
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# PACIFIC Exchange Rate Service

## Retrieval Interface

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**NEW! Exchange rates are vis-à-vis the selected base currency.**

The original data are all vis-à-vis the Canadian Dollar. There is a loss of accuracy in using other base currencies, and differences to other spot markets may occur due to differences in trading dates and time, and imperfect arbitrage.

Quotation	Time Period	Output Format
<input type="radio"/> volume notation e.g., ¥/\$, £/\$.  <input type="radio"/> price notation e.g., \$/¥ \$/£.	Start Date: <input type="text" value="1"/> <input type="text" value="Jan"/> <input type="text" value="1997"/> End Date: <input type="text" value="31"/> <input type="text" value="Dec"/> <input type="text" value="1997"/>	Format: <input type="text" value="plain"/> Table Transposition <input type="text" value="Day / Currency"/> Country identification: <input type="text" value="ISO codes"/>
<b>Base Currency</b>		
<input checked="" type="radio"/> Canadian Dollars <input type="radio"/> German Marks	<input type="radio"/> American Dollars <input type="radio"/> Japanese Yen	<input type="radio"/> British Pounds <input type="radio"/> French Francs
<b>Currencies</b>		
<input type="checkbox"/> American Dollars <input type="checkbox"/> Argentinian Pesos <input type="checkbox"/> Australian Dollars <input type="checkbox"/> Austrian Schillings <input type="checkbox"/> Bahamian Dollars <input type="checkbox"/> Barbados Dollars <input type="checkbox"/> Belgian Francs <input type="checkbox"/> Bermudian Dollars <input type="checkbox"/> Brazilian Reals <input type="checkbox"/> British Pounds <input type="checkbox"/> Chilean Pesos <input type="checkbox"/> Chinese Renmimbi <input type="checkbox"/> Czech Koruna <input type="checkbox"/> Danish Kroner <input type="checkbox"/> Dutch Guilders	<input type="checkbox"/> Greek Drachmas <input type="checkbox"/> Hong Kong Dollars <input type="checkbox"/> Hungarian Forint <input type="checkbox"/> Icelandic Krona <input type="checkbox"/> Indian Rupees <input type="checkbox"/> Indonesian Rupiah <input type="checkbox"/> Irish Punt <input type="checkbox"/> Israeli New Shekels <input type="checkbox"/> Italian Lira <input type="checkbox"/> Jamaican Dollars <input type="checkbox"/> Japanese Yen <input type="checkbox"/> Jordanian Dinars <input type="checkbox"/> Malaysian Ringgit <input type="checkbox"/> Mexican New Pesos <input type="checkbox"/> New Zealand Dollars	<input type="checkbox"/> Russian Rubles <input type="checkbox"/> Saudi Arabian Riyal <input type="checkbox"/> Special Drawing Rights <input type="checkbox"/> Singapore Dollars <input type="checkbox"/> South African Rand <input type="checkbox"/> South Korean Won <input type="checkbox"/> Spanish Pesetas <input type="checkbox"/> Sudanese Dinars <input type="checkbox"/> Swedish Krona <input type="checkbox"/> Swiss Francs <input type="checkbox"/> Taiwan Dollars <input type="checkbox"/> Thai Baht <input type="checkbox"/> Trinidad and Tobago Dollars <input type="checkbox"/> Turkish Lira <input type="checkbox"/> Venezuelan Bolivar

<input type="checkbox"/> Egyptian Pounds <input type="checkbox"/> European currency unit <input type="checkbox"/> Finnish Markka <input type="checkbox"/> French Francs <input type="checkbox"/> German Marks	<input type="checkbox"/> Norwegian Kroner <input type="checkbox"/> Pakistani Rupees <input type="checkbox"/> Philippines Pesos <input type="checkbox"/> Polish Zloty <input type="checkbox"/> Portugese Escudo	<i>Commodities</i> <input type="checkbox"/> Gold Ounce (New York) <input type="checkbox"/> Silver Ounce (New York) <input type="checkbox"/> Platinum Ounce (New York)
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# PACIFIC

## Exchange Rate Service

### Data Availability Chart

as of November 13, 1996

ISO 4217	Currency	First Date	Data Points	Map
USD	American Dollars	1971/01/04	6518	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
BEF	Belgian Francs	1971/01/04	6512	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
GBP	British Pounds	1971/01/04	6512	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
FRF	French Francs	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
DEM	German Marks	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
ITL	Italian Lira	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
JPY	Japanese Yen	1971/01/04	6506	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
SEK	Swedish Krona	1971/01/04	6511	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
CHF	Swiss Francs	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
ESP	Spanish Pesetas	1973/01/02	6012	--XXXXXXXXXXXXXXXXXXXXXXXX
HKD	Hong Kong Dollars	1981/01/02	4014	-----XXXXXXXXXXXXXXXX
SGD	Singapore Dollars	1981/01/02	3457	-----XXXXXXXXXXXXXXXX
KRW	South Korean Won	1981/04/13	3876	-----XXXXXXXXXXXXXXXX
TWD	Taiwan Dollars	1983/10/03	3003	-----XXXXXXXXXXXXXXXX
AUD	Australian Dollars	1991/01/02	1489	-----XXXXXX
ATS	Austrian Schillings	1991/01/02	1495	-----XXXXXX
DKK	Danish Kroner	1991/01/02	1495	-----XXXXXX
NLG	Dutch Guilders	1991/01/02	1489	-----XXXXXX
FIM	Finnish Markka	1991/01/02	1495	-----XXXXXX
IEP	Irish Punt	1991/01/02	1471	-----XXXXXX
NZD	New Zealand Dollars	1991/01/02	1471	-----XXXXXX
NOK	Norwegian Kroner	1991/01/02	1495	-----XXXXXX
XDR	Special Drawing Rights	1991/01/02	1504	-----XXXXXX
CNY	Chinese Renmimbi	1993/01/04	950	-----XXXX
XEU	European Currency Units	1993/01/04	975	-----XXXX
GRD	Greek Drachmas	1993/01/04	975	-----XXXX
INR	Indian Rupees	1993/01/04	974	-----XXXX

MYR	Malaysian Ringgit	1993/01/04	975	-----XXXX
PTE	Portugese Escudo	1993/01/04	975	-----XXXX
THB	Thai Baht	1993/01/04	966	-----XXXX
MXP	Mexican New Pesos	1993/07/07	836	-----XXXX
BSD	Bahamian Dollars	1996/02/02	194	-----X
BBD	Barbados Dollars	1996/02/02	194	-----X
BMD	Bermudian Dollars	1996/02/02	194	-----X
CLP	Chilean Pesos	1996/02/02	193	-----X
EGP	Egyptian Pounds	1996/02/02	194	-----X
HUF	Hungarian Forint	1996/02/02	194	-----X
ISK	Icelandic Krona	1996/02/02	194	-----X
IDR	Indonesian Rupiah	1996/02/02	194	-----X
ILS	Israeli New Shekels	1996/02/02	194	-----X
JMD	Jamaican Dollars	1996/02/02	194	-----X
PKR	Pakistani Rupees	1996/02/02	194	-----X
PHP	Philippines Pesos	1996/02/02	194	-----X
PLZ	Polish Zloty	1996/02/02	194	-----X
SUR	Russian Rubles	1996/02/02	194	-----X
SAR	Saudi Arabian Riyal	1996/02/02	194	-----X
ZAR	South African Rand	1996/02/02	194	-----X
TTD	Trinidad and Tobago Dollars	1996/02/02	193	-----X
TRL	Turkish Lira	1996/02/02	193	-----X
VEB	Venezuelan Bolivars	1996/02/02	194	-----X
ARP	Argentinian Pesos	1996/08/06	68	-----X
BRR	Brazilian Reals	1996/08/06	68	-----X
SDD	Sudanese Dinars	1996/08/06	68	-----X
XAU	Gold Ounce (New York)	1996/08/07	67	-----X
XPT	Platinum Ounce (New York)	1996/08/07	67	-----X
XAG	Silver Ounce (New York)	1996/08/07	67	-----X
CSK	Czech Koruna	1996/08/08	66	-----X
JOD	Jordanian Dinar	1996/08/08	66	-----X
AOK	Angolan Kwanzas	1996/10/15	16	-----X
DOP	Dominican Republic Pesos	1996/10/15	18	-----X
XCD	East Caribbean Dollars	1996/10/15	18	-----X
GTQ	Guatemalan Quetzales	1996/10/15	18	-----X
HTG	Haitian Gourdes	1996/10/15	18	-----X
HNL	Honduran Lempiras	1996/10/15	18	-----X

KES	Kenyan Schillings	1996/10/15	18	-----X
MWK	Malawi Kwachas	1996/10/15	18	-----X
MZM	Mozambique Meticals	1996/10/15	16	-----X
NGN	Nigerian Nairas	1996/10/15	18	-----X
PEN	Peruvian New Soles	1996/10/15	18	-----X
The PACIFIC database currently contains 69 currencies and commodities.				

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FAX: +1-604-822-8477

Postal Address:  
Prof. W. Antweiler  
University of British  
Columbia - Faculty of  
Commerce and Business  
Administration  
2053 Main Mall  
Vancouver, BC, V6T 1Z2  
Canada

# PACIFIC

Policy Analysis Computing & Information Facility In Comm

## EXCHANGE RATE SERVICE

*provided by*  
Prof. Werner Antweiler  
University of British Columbia, Vancouver, Canada

This service provides access to current and historic daily exchange rates through an on-line database retrieval and plotting system. Also provided is a list of the currencies of the world with information on each country's exchange regime and ISO-4217 currency code. Analyses and trend projections for the Canadian Dollar, the U.S. Dollar, and the Euro are available as well. This service is dedicated to the support of academic research and teaching in the field of exchange rate economics.

### Current FX Rates

[Today's Exchange Rates](#) (updated each noon Pacific Time; 53 key currencies)

[Supplementary Issue](#) (about 200 countries, updated daily, but less reliable)

[Real-Time Rates](#) (via Yahoo! Finance, for top 8 currencies)

### Canadian Dollar Services

[Analysis](#) (daily)

[Key Interest Rates](#)

[Trends](#) (twice-weekly)

[Noon Spot Rates](#) (Official Quotes from Bank of Canada)

[Forward Rates](#) (weekly)

[Real-Time USD/CAD Rates](#) (via Yahoo!-Finance)

[A History of the Canadian Dollar](#) (via Bank of Canada)

[Average 2001 Exchange Rates for Tax Purposes](#) (via Canada Customs and Revenue Agency)

### U.S. Dollar Services

### Historic FX Rates Database

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[Plot Data](#)

featuring single series and comparative plots, moving averages, volatility charts, and other special features

[Data Availability Chart](#)

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[Table](#) | [List](#)

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[The Euro - Europe's New Currency](#)

[What is Purchasing Power Parity?](#) - Facts and Figures

[What are Special Drawing Rights?](#)

[European Currency Unit \(ECU\)](#)  
[Historic Fact Sheet](#)

[Historic Annual Average Real Exchange Rates 1948-2001 \(PDF\)](#) ~~updated~~

Daily 4pm Rates (USD base)  
 (daily from TeleRate, includes  
 forward rates)  
Analysis (daily)

### **Euro Services**

Analysis (daily)  
Trends (twice-weekly)

### **Currency Converters**

Personal Currency Assistant - a  
 service provided by Xenon  
 Laboratories

per 1 US Dollar  
per 1 Canadian Dollar  
per 1 British Pound

### **Other information**

Links to other Exchange Rate  
 Services on the Web

Frequently Asked Questions

ISO-4217 Currency Codes

ISO-3166 Country Codes

Julian Dates

### **Key Cross-Currency Rates**

	USD	EUR	GBP	JP1	CHF	CAD	AUD	MXN
USD		0.97093	1.5463	0.79677	0.66058	0.63609	0.55022	0.10
EUR	1.0299		1.5926	0.82062	0.68036	0.65514	0.56669	0.10
GBP	0.64669	0.62789		0.51526	0.42719	0.41135	0.35582	0.064
JPY	125.51	121.86	194.08		82.908	79.834	69.056	12.5
CHF	1.5138	1.4698	2.3409	1.2062		0.96293	0.83293	0.15
CAD	1.5721	1.5264	2.4310	1.2526	1.0385		0.86500	0.15
AUD	1.8175	1.7646	2.8104	1.4481	1.2006	1.1561		0.18
MXN	9.9816	9.6914	15.435	7.9530	6.5937	6.3492	5.4921	

Rates as of Fri 2002/10/18.

USD = U.S. Dollar; EUR = European Euro; GBP = British Pound; JPY = Japanese Yen; JP1 = 100 Japanese Yen; CH Franc; CAD = Canadian Dollar; AUD = Australian Dollar; MXN = Mexican Peso. Read vertically to find how m currency buys. For example, the first column ("USD") tells you the value of 1 USD in EUR, GBP, JPY and so on. R table horizontally you find the price of foreign currencies. For example, the first row tells you the USD price of 1 EU 100 JPY, and so on.

The exchange rate data published on this service were obtained from various Commencing December 1, 1998, noon spot rates are obtained from the Bank of Canada rates are stored immediately in the database of historic exchange rates shortly after th been published; this occurs at 11:30am Pacific Time (2:30pm Eastern).

Additional exchange rate data are provided daily from a variety of sources, includi closing rates for the USD for some currencies are obtained from Dow Jones Telerate. T posted in the U.S. section of this service.

PACIFIC makes no warranties, express or implied, as to the accuracy of the data p This service was introduced on February 2, 1996. The earliest historic exchange rates 1971; however, for many currencies data are only available for the time period a introduction of this service (Feb 96).

Exchange rates for the IMF's Special Drawing Rights are derived from the five currencies of the SDR. Note that the time series for the Euro and the ECU have amalgamated. Prior to January 1, 1999, the Euro time series contains ECU data.

# PACIFIC Exchange Rate Service

YYYY/MM/DD	2002/10/18
ARS/CAD	2.2994

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# Purchasing Power Parity

## Facts and Figures

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### What is Purchasing Power Parity?

Purchasing power parity (PPP) is a theory which states that exchange rate currencies are in equilibrium when their purchasing power is the same in the two countries. This means that the exchange rate between two countries equals the ratio of the two countries' price level of a fixed basket of services. When a country's domestic price level is increasing (i.e., experiences inflation), that country's exchange rate must depreciate in order to return to PPP.

The basis for PPP is the "law of one price". In the absence of transportation and other transaction costs, competitive markets will equalize the price of a good in two countries when the prices are expressed in the same currency. For example, a particular TV set that sells for 750 Canadian Dollars in Vancouver should cost 500 US Dollars [USD] in Seattle when the exchange rate between Canada and the US is 1.50 CAD/USD. If the price of the TV in Vancouver was only 700 CAD, consumers in Seattle would prefer buying the TV in Vancouver. If this process (called "arbitrage") is carried out at a large scale, more consumers buying Canadian goods will bid up the value of the Canadian Dollar, thus making Canadian goods more costly to them. This process continues until the goods have again the same price. There are three caveats with this law of one price: (1) As mentioned above, transportation costs, barriers to trade, and other transaction costs, can be significant. (2) There must be competitive markets for the goods and services in both countries. (3) The law of one price only applies to tradeable goods and services. Immovable goods such as houses, and many services that are local, are not traded between countries.

Economists use two versions of Purchasing Power Parity: absolute PPP and relative PPP. Absolute PPP was described in the previous paragraph; it refers to the equalization of price levels across countries. Put formally, the exchange rate between Canada and the United States  $E_{CAD/USD}$  is equal to the price level in Canada  $P_{CAN}$  divided by the price level in the United States  $P_{USA}$ . Assuming a price level ratio  $P_{CAN}/P_{USD}$  implies a PPP exchange rate of 1.3 CAD per 1 USD. If today's exchange rate  $E_{CAD/USD}$  is 1.5 CAD per 1 USD, PPP theory implies that the CAD will appreciate (get stronger) against the USD, and the USD will depreciate (get weaker) against the CAD.

Relative PPP refers to rates of changes of price levels, that is, inflation. The relative PPP proposition states that the rate of appreciation of a currency is equal to the difference in inflation rates between the foreign and the home country. For example, if Canada has an inflation rate of 1% and the US has an inflation rate of 3%, the US Dollar will depreciate against the Canadian Dollar by 2% per year. This proposition holds well empirically especially when the inflation difference is large.

### **Does PPP determine exchange rates in the short term?**

No. Exchange rate movements in the short term are news-driven. Announcements about interest rate changes, changes in perception of the growth path of a country and the like are all factors that drive exchange rates in the short run. The long run comparison, describes the long run behaviour of exchange rates. The forces behind PPP will eventually equalize the purchasing power of currencies, but it can take many years, however. A time horizon of 4-10 years would be typical.

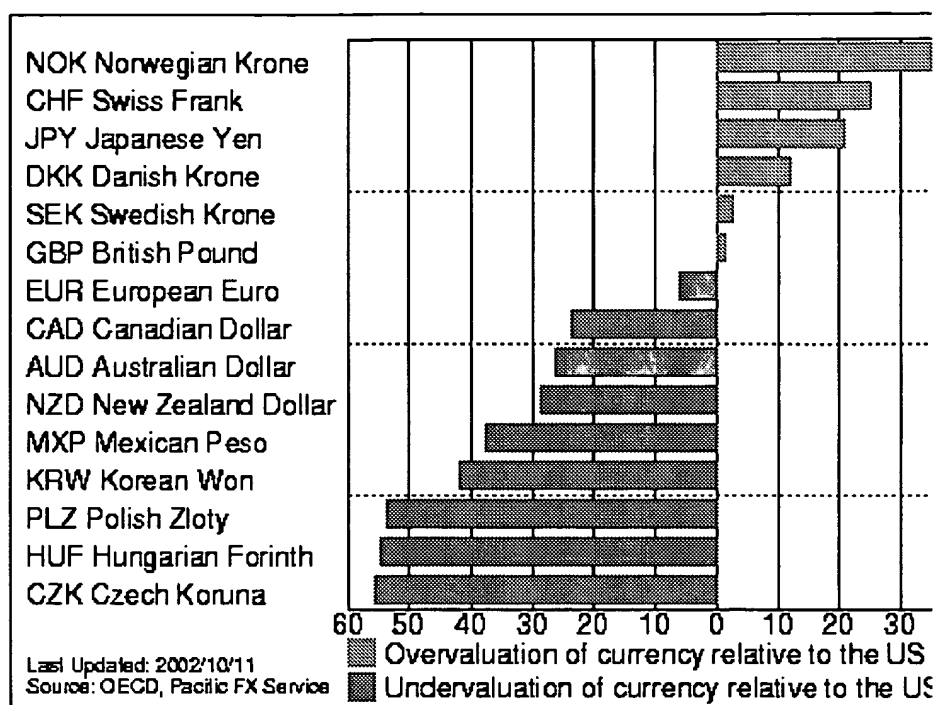
### **How can PPP be calculated?**

The simplest way to calculate purchasing power parity between two countries is to compare the price of a "standard" good that is in fact identical across countries. Every year *The Economist* magazine publishes a light-hearted version of this, the "Hamburger Index" that compares the price of a McDonald's hamburger in different parts of the world. More sophisticated versions of PPP look at a large number of goods and services. One of the key problems is that people in different countries consume very different sets of goods and services, making it difficult to compare purchasing power between countries.

### **According to PPP, by how much are currencies overvalued or undervalued?**

The following chart compares the PPP of a currency with its actual exchange rate. The chart is updated periodically to reflect the current exchange rate. It is updated about twice a year to reflect new estimates of PPP. The PPP estimates are taken from studies carried out by the Organization for Economic Cooperation and Development (OECD) and others; however, they should not be considered "definitive". Different methods of calculation will arrive at different PPP estimates.

The currencies listed below are compared to the US Dollar. A green bar indicates that the local currency is overvalued by the percentage figure shown on the chart; the currency is thus expected to depreciate against the US Dollar in the long run. A red bar indicates undervaluation of the local currency; the currency is thus expected to appreciate against the US Dollar in the long run.



### Where can I get more information?

- **OECD National Accounts.**

The OECD publishes PPPs for all OECD countries. You can retrieve the PDF file 2001 PPP rates from this site. Also available is a table with the OECD's 1970-2001 rates. This is a comma-separated file that can be easily imported into a spreadsheet [Alternate link, XLS file; alternate link, PDF file]

- From *The Economist* magazine: **The Big Mac Index** - as they put it world's most accurate financial indicator (to be based on a fast food with a ten-year retrospective on burgeronomics"

Check out the latest [Big Mac index](#) for 2001.

- Wilfred J. Ethier: *Modern International Economics*, 3rd edition. W. Norton & Comp., New York/London: 1995. Chapter 18, section 2 on "P Linkages" contains an excellent non-technical overview of PPP

- Kenneth Rogoff: *The Purchasing Power Parity Puzzle*, Journal of E Literature, 34(2), June 1996, pages 647-668.

This recent survey provides an overview of developments with respect to research including the emerging consensus that deviations from PPP do damp out but only slowly, at roughly fifteen percent per year. It remains difficult to explain why the speed of convergence to PPP is so slow.

- For the more technically minded, I recommend searching the [EconI](#) database for recent research papers on PPP. This is a very active br economic research, both theoretically and empirically.

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0 pages	1 pages	8 pages	7 pages	18 pages	121 pages	1 pages
	<a href="#">Dec 10, 1997</a> *	<a href="#">Jan 10, 1998</a> *	<a href="#">Jan 25, 1999</a> *	<a href="#">Feb 26, 2000</a> *	<a href="#">Jan 18, 2001</a> *	<a href="#">Jan 27, 2002</a> *
		<a href="#">Feb 06, 1998</a> *	<a href="#">Feb 08, 1999</a> *	<a href="#">Feb 29, 2000</a> *	<a href="#">Jan 18, 2001</a> *	
		<a href="#">Feb 09, 1998</a>	<a href="#">Feb 20, 1999</a> *	<a href="#">Mar 02, 2000</a> *	<a href="#">Jan 19, 2001</a> *	
		<a href="#">Apr 19, 1998</a> *	<a href="#">Apr 18, 1999</a> *	<a href="#">Mar 02, 2000</a> *	<a href="#">Jan 19, 2001</a> *	
		<a href="#">May 21, 1998</a> *	<a href="#">Oct 07, 1999</a> *	<a href="#">Mar 03, 2000</a> *	<a href="#">Jan 19, 2001</a> *	
		<a href="#">Dec 05, 1998</a> *	<a href="#">Nov 16, 1999</a> *	<a href="#">Apr 08, 2000</a> *	<a href="#">Jan 19, 2001</a> *	
		<a href="#">Dec 06, 1998</a>	<a href="#">Nov 22, 1999</a> *	<a href="#">Aug 15, 2000</a> *	<a href="#">Jan 30, 2001</a> *	
		<a href="#">Dec 12, 1998</a> *		<a href="#">Aug 16, 2000</a>	<a href="#">Feb 02, 2001</a> *	
				<a href="#">Oct 18, 2000</a> *	<a href="#">Feb 24, 2001</a> *	
				<a href="#">Oct 18, 2000</a> *	<a href="#">Apr 04, 2001</a> *	
				<a href="#">Oct 19, 2000</a>	<a href="#">Apr 18, 2001</a> *	
				<a href="#">Oct 19, 2000</a> *	<a href="#">Apr 18, 2001</a> *	
				<a href="#">Nov 18, 2000</a> *	<a href="#">May 03, 2001</a> *	
				<a href="#">Dec 05, 2000</a> *	<a href="#">May 03, 2001</a> *	
				<a href="#">Dec 07, 2000</a> *	<a href="#">May 06, 2001</a> *	
				<a href="#">Dec 17, 2000</a> *	<a href="#">May 13, 2001</a> *	
				<a href="#">Dec 18, 2000</a> *	<a href="#">May 15, 2001</a> *	
				<a href="#">Dec 18, 2000</a> *	<a href="#">May 15, 2001</a> *	
					<a href="#">May 15, 2001</a> *	
					<a href="#">May 21, 2001</a> *	
					<a href="#">May 26, 2001</a> *	
					<a href="#">May 27, 2001</a> *	
					<a href="#">May 27, 2001</a> *	
					<a href="#">May 29, 2001</a> *	
					<a href="#">May 31, 2001</a> *	
					<a href="#">Jun 01, 2001</a> *	
					<a href="#">Jun 09, 2001</a> *	
					<a href="#">Jun 11, 2001</a> *	
					<a href="#">Jun 20, 2001</a> *	
					<a href="#">Jun 21, 2001</a> *	
					<a href="#">Jun 25, 2001</a> *	
					<a href="#">Jun 28, 2001</a> *	
					<a href="#">Jun 28, 2001</a> *	
					<a href="#">Jun 29, 2001</a> *	
					<a href="#">Jun 29, 2001</a> *	
					<a href="#">Jun 30, 2001</a> *	
					<a href="#">Jul 01, 2001</a> *	
					<a href="#">Jul 02, 2001</a> *	
					<a href="#">Jul 03, 2001</a> *	
					<a href="#">Jul 07, 2001</a> *	
					<a href="#">Jul 11, 2001</a> *	



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Jul 13, 2001 \*  
Jul 13, 2001 \*  
Jul 22, 2001 \*  
Sep 26, 2001 \*  
Oct 10, 2001 \*  
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x

## 164 Currency Converter

---

Convert amount <input style="width: 50px;" type="text" value="1"/> with rate of <input style="width: 80px;" type="text" value="12/10/97"/> <input style="width: 60px;" type="text" value="mm/dd/yy"/>	TO	<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: black; color: white; padding: 2px;">US Dollar . USD</div> <div style="padding: 2px;">           German Mark . DEM            Afghanistan Afghani . AFA            Albanian Lek . ALL            Algerian Dinar . DZD            Andorran Franc . ADF            Andorran Peseta . ADP         </div> </div>
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: black; color: white; padding: 2px;">US Dollar . USD</div> <div style="padding: 2px;">           German Mark . DEM            Afghanistan Afghani . AFA            Albanian Lek . ALL            Algerian Dinar . DZD            Andorran Franc . ADF            Andorran Peseta . ADP         </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: black; color: white; padding: 2px;">US Dollar . USD</div> <div style="padding: 2px;">           German Mark . DEM            Afghanistan Afghani . AFA            Albanian Lek . ALL            Algerian Dinar . DZD            Andorran Franc . ADF            Andorran Peseta . ADP         </div> </div>
Currency Symbol: <input style="width: 60px;" type="text"/>		Currency Symbol: <input style="width: 60px;" type="text"/>
<div style="border: 1px solid black; padding: 2px;"> <div style="background-color: black; color: white; padding: 2px;">Interbank Rate</div> </div>		<div style="border: 1px solid black; padding: 2px; text-align: center;"> <div style="background-color: black; color: white; padding: 2px;">Convert Now!</div> </div>

[Set Converter Preferences](#)

[FAQ](#) . [Disclaimer](#)

### Don't Miss Out the Wallet-sized Currency Table!

You can view any exchange rates among the 164 currencies for any day since 1 January 1990 through today. The currency converter is updated daily at 8:00 p.m. EST.

164 Currency Converter © 1997, by OANDA, Inc.

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### What are OANDA's other exciting financial services?

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- Advanced [currency forecasts](#)
- Easy [Customizable Currency Converter](#) with the look and feel of your Web site
- Popular currency converter in other languages:
  - German version: [Wechselkurse für 164 Währungen](#)
  - French version: [Convertisseur de 164 monnaies](#)
  - Italian version: [Cambiavalute fra 164 divise](#)

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## Foreign Exchange Protocol

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### What is FXP ?

The Foreign Exchange Protocol (FXP) is a simple, automatic way of retrieving currency exchange rates over the Internet. Free client software is available from this page that will allow your computer to query a free server at [OANDA](#) and have it convert amounts from one currency to another, using OANDA's database of daily exchange rates for 164 different currencies.

### Uses

- display the prices on your web page in your customer's currency
- automatically convert prices in expense reports, quotations, purchase orders, ...
- produce currency exchange rate tables and graphs
- use in any software that needs to convert currencies

### Features

- single conversions or time series
- specify bid or ask prices
- mean, minimum, and maximum prices available
- historical rates; specify the day of the conversion from yesterday back as far as 1990 (for many currencies)
- get a list of currency symbols
- translate a currency symbol into the currency name

### What is Available

The software package contains a library of routines written in C which will contact an FXP server and convert currencies. There are also a few sample programs to show you how to use the routines. There is some [documentation](#) for the programs and routines.

There is a [protocol document](#) that describes the FXP protocol, in case you want to write your own routines.

### Try It Out

Here is a light hearted demonstration of a web page that uses FXP to display prices in any currency. To start the demonstration, please select the currency that you would like to see prices quoted in and press Continue:

Continue

Afghanistan Afghani	
Albanian Lek	
Algerian Dinar	
Andorran Franc	
Andorran Peseta	
Angolan New Kwanza	
Argentine Peso	

---

### Download the Software

Download the [OANDA FXP client software](#).

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# Foreign Exchange Protocol Specification

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## Version 1.1

Dave Galloway

OANDA, Inc.

October 1, 1997

### Introduction

The Foreign Exchange Protocol (FXP) allows a client to obtain currency exchange rate information from server over the Internet. The protocol uses an underlying reliable stream protocol, currently TCP/IP.

The server listens for connections to TCP port 5011. This port number has not been allocated by any official body, and is subject to change.

A client creates a connection to the server, and sends one or more requests over the connection. Each request is answered by an individual response from the server over the same connection. Requests are always answered in sequence. The connection may be broken by either the client or the server. Responses that are lost due to a broken connection are not re-transmitted.

Requests and responses are transmitted using the ASCII character set. Each request consists of a number of lines of text, followed by a single blank line. Each response consists of a number of lines of header text, followed by a single blank line, optionally followed by a number of lines of data, followed by a single blank line. All lines of text (including blank lines) are terminated by the two character sequence <carriage return> <line feed>. This retains compatibility with the telnet protocol, and telnet can be used to send fxp requests to a server.

The protocol is case insensitive, and requests and responses may be sent in either upper or lower case.

### Requests

Each request must begin with a line giving the protocol version used:

```
fxp/1.1
```

The protocol version line is followed by one or more request specification lines, in any order. Each request specification line consists of a tag, followed by a single colon character, followed by a single space character, followed by a value. A specific tag may only be used once per request. Values revert to their default value after each request.

- Query: currencies

The Query line is optional, and specifies the type of FXP query. The value must be one of quote or currencies. A query type of quote is used to obtain information about the conversion rate between 1

currencies. A query type of currencies is used to obtain currency symbol codes and currency name. The default value is quote.

- Quotecurrency: CAD

If the query type is quote, then the Quotecurrency line is required, and specifies the currency that the client wants to know the price of. The value can be any valid 3 letter ISO or OANDA currency code.

If the query type is currencies, then the Quotecurrency line is optional. If present, it specifies the currency symbol that the client wants to know the name of.

- Quotecurrency: {CHF 125.75}

Optionally, the Quotecurrency line may be given with a value consisting of a left curly brace character followed by a 3 letter currency code, followed by a single space character, followed by a floating point number, followed by a right curly brace character. This variant allows the client to specify the amount of the currency to be converted. The default amount is 1.0 units of the currency.

- Basecurrency: USD

The Basecurrency line is optional, and is used to specify the currency units used in the response. The value can be any valid 3 letter ISO or OANDA currency code. The default Basecurrency is USD.

- Date: Mon, 02 Jun 1997 13:37:56 GMT

The Date line is optional, and is used to specify the date and time to be used when retrieving the conversion rate information. The value of the date tag must be in the form specified in RFC 822, as modified by RFC 1123. The default Date value is the current date and time.

- Timeincrement: 86400

The Timeincrement line is optional, and specifies the number of seconds between adjacent conversion results. The value must be a positive integer. The default Timeincrement value is 60 seconds.

- Nprices: 12

The Nprices line is optional, and specifies the number of conversion results required. The value must be a positive integer. If the Nprices value is greater than 1, the specified number of conversions will be performed. The date and time of the first conversion will be given by the Date line. This date and time will be incremented for each subsequent conversion by the amount given on the Timeincrement line. The default Nprices value is 1.

- Queryid: 129

The Queryid line is optional. The value of the Queryid tag must be a single token with no embedded space or tab characters. There must be no more than 80 characters in the value. If a Queryid line is present in a request, a Queryid line with the same tag will be included in the response to that request.

- Quoteperiod: spot

The Quoteperiod line is optional. It specifies the time period used to collect the data used in the response. A value of day asks for the statistics that best summarize the entire day's prices for the Quotecurrency. A value of spot asks for the statistics that best describe the prices at the specified date and time. The default Quoteperiod value is day.

- Quotetype: bid ask max\_bid

The Quotetype line is optional. The value of the tag is a non-empty list of tokens, separated by single space characters. The legal tokens are:

bid	the median price offered by people willing to buy the Quotecurrency
ask	the median price desired by people willing to sell the Quotecurrency
min_bid	the minimum bid price
min_ask	the minimum ask price
max_bid	the maximum bid price
max_ask	the maximum ask price
fractile_low_bid	the price that 75% of the buyers are willing to pay
fractile_low_ask	the price that 25% of the sellers are willing to accept
fractile_high_bid	the price that 25% of the buyers are willing to pay
fractile_high_ask	the price that 75% of the sellers are willing to accept
num_ticks	the total number of price quotations seen during the Quoteperiod
date	the date of the data used in composing the response

The default Quotetype value is bid.

## Responses

Each response begins with a line containing the protocol used, followed by a single space character, followed by a three digit status code, optionally followed by text that may be passed to a user explaining the status code:

```
fxp/1.1 200 ok
```

The first digit of each response code specifies the class of the response. Response codes starting with 2 specify a successful response, and such responses are followed by lines of data. Response codes starting with 4 indicate an illegal query. Response codes starting with 5 indicate a server error.

### Response code Possible user text explanations

200	response ok
400	bad request
404	not found
500	server internal error
501	not implemented
503	unavailable
505	version unsupported



The response code line is followed by zero or more response header lines, in any order. Each response header line consists of a tag, followed by a single colon character, followed by a single space character, followed by a value. A specific tag will only be used once per response.

- Content-lines: 1

If the response code started with a 2, the response headers will be followed by lines of data. The Content-lines value will be present, and will specify how many lines of data will follow.

- Queryid: 129

The Queryid line will be present if it was successfully recognized in the request, regardless of the value of the response code. The value of the Queryid will be equal to the value given in the request.

The request headers will be terminated by a single blank line. If the Content-lines header was present the blank line will be followed by the given number of lines of data, terminated by another blank line.

If the query type was quote, each line of data will contain one value for each token given in the Quotetype line. The values will be separated by single space characters. If the Quotetype token was date, the value will be a date string given in the standard date format specified in RFC 822, as modified by RFC 1123. For all other tokens, if the server can answer the query, the value will be a single floating point number such as:

1.2645

If the server can not answer the query, the value will be the token:

na

for "not available".

If the query type was currencies, each line of data will start with a three letter ISO (or OANDA) currency symbol, followed by a single space character, followed by the name of the currency in English. If the quote currency was specified in the request, the response will contain a single line containing the symbol name of that currency. If the quote currency was not specified, the response will contain multiple lines, one for each of the possible currencies.

## Examples

The following table contains possible FXP requests and responses:

Request	Corresponding Response
fxp/1.1 queryid: 0 basecurrency: DEM quote currency: FJD date: Mon, 06 Jul 1992 12:34:44 GMT nprices: 3 timeincrement: 172800	fxp/1.1 200 ok Queryid: 0 Content-lines: 3 na na na
fxp/1.1 queryid: 3	fxp/1.1 200 ok Queryid: 3

basecurrency: ITL quotecurrency: JPY date: Sat, 07 May 1994 14:29:16 GMT nprices: 2 timeincrement: 172800	Content-lines: 2 15.579100 15.483700
fxp/1.1 quotecurrency: CHF date: Tue, 03 Nov 1992 01:02:20 GMT	fxp/1.1 200 ok Content-lines: 1 0.714000
fxp/1.1 quotecurrency: CAD	fxp/1.1 200 ok Content-lines: 1 0.72270000
fxp/1.1 quotecurrency: {FRF 1000} date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 200 ok Content-lines: 1 174.800000
fxp/1.1 quotecurrency: {FRF 1000 date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 400 invalid quotecurrency
fxp/1.1 queryid: 41 quotecurrency: {FRF 1000 date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 400 invalid quotecurrency Queryid: 41
fxp/1.1 date: Wed, 05 Feb 1997 01:00:00 GMT quotetype: bid ask min_bid max_bid quotecurrency: CAD nprices: 3 timeincrement: 86400	fxp/1.1 200 ok Content-lines: 3 0.74390000 0.74420000 0.74250000 0.74480000 0.74180000 0.74210000 0.73860000 0.74340000 0.74060000 0.74100000 0.73880000 0.74210000
fxp/1.1 date: Wed, 05 Feb 1997 01:00:00 GMT quotetype: date bid ask quotecurrency: CAD nprices: 3 timeincrement: 86400	fxp/1.1 200 ok Content-lines: 3 Wed, 05 Feb 1997 00:00:00 GMT 0.74390000 0.74420 Thu, 06 Feb 1997 00:00:00 GMT 0.74180000 0.74210 Fri, 07 Feb 1997 00:00:00 GMT 0.74060000 0.74100
fxp/1.1 quotecurrency: FJD nprices: 3 timeincrement: 86400 quotetype: date bid ask date: Fri, 02 May 1997 12:00:00 GMT	fxp/1.1 200 ok Content-lines: 3 Fri, 02 May 1997 00:00:00 GMT 0.70500000 0.71000 Fri, 02 May 1997 00:00:00 GMT 0.70500000 0.71000 Sun, 04 May 1997 00:00:00 GMT 0.70550000 0.70650
fxp/1.1 query: currencies quotecurrency: CAD	fxp/1.1 200 ok Content-lines: 1 CAD Canadian Dollar

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## The Currency \$ite

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Welcome to OANDA, the currency site featuring the Web's most popular currency converter and state-of-the-art financial services for currency investing. Read more about us. If you work with currencies, or just spend them, you'll find our site useful and, hopefully, fun.

---

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- [164 Currency Converter](#)  
(Thu, Dec 11, 1997)
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- [Today's Market Insight](#)  
(Wed, Dec 10, 1997)
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### NEWS

- OANDA releases new foreign exchange protocol. Free download FXP client software (currently for UNIX only).
- OANDA releases the German version of the Cheat Sheet for Travelers.
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599 Lexington Avenue, Suite 2300  
New York, NY 10022  
USA

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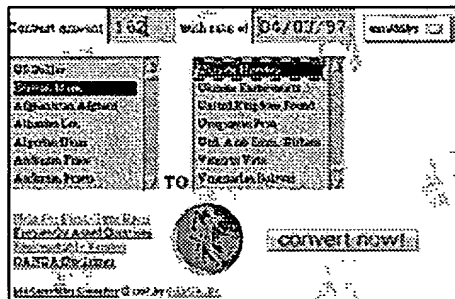
---

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## How to Convert Currencies

[\[Overview\]](#) [\[Glossary\]](#)



## Quick summary of how to convert currencies

Follow these steps to convert currencies.

1. Click the "Currency Converters" folder in the SiteSeeing frame, then choose the language you want **or** click 164 Currency Converter in the OANDA homepage. See To find the 164 Currency Converter in the SiteSeeing frame.
2. Choose a currency or precious metal you want to convert **from** in the left scrolling list. Click the scrolling arrows to see more currency selections.
3. Choose a currency or precious metal you want to convert **to** in the right scrolling list. Click the scrolling arrows to see more currency selections.
4. If you want to change the amount of the currency to convert **from**, click the text box next to "Convert Amount" and type the amount of the currency you want to convert. The default is "1."
5. Click the "Convert Now!" button.

**Important:** All currencies are listed with the name of their country first. For example, the "Peso" for Mexico is listed as "Mexican Peso."

**You can also:**

- change the date for the exchange rate. We offer exchange rates all the way back to January 1, 1990.
- choose another date format
- make another conversion with the same currencies
- make another conversion with different currencies

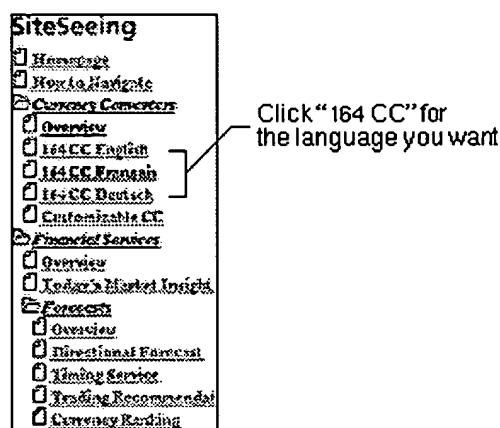
## See also

- Frequently asked questions about our 164 Currencies Converter
- Understanding 164 Currency Converter results

- Currencies with few price points

## To find the 164 Currency Converter in the SiteSeeing frame

The 164 Currency Converter is in **Currency Converters**



**Important:** If you see "Requires Javascript" in the SiteSeeing frame instead of the above contents, then your Web browser may not support **Javascript** or be Javascript enabled. Browsers which support Javascript include Internet Explorer 3.x and Netscape Navigator 3.x. If your browser does support Javascript then see your browser's user documentation for more information on enabling Javascript.

The contents of the SiteSeeing frame are also displayed on the OANDA homepage.

## To change the date for the exchange rate

- Click the text box next to "with the rate for" and type the new date. By default the current date is shown. You can enter any date between the current date and January 1, 1990.

## To choose another date format

- Click the drop-down list box and choose a new format. By default the "mm/dd/yy" format for the US is shown.

## To make another conversion with the same currencies

1. Click the "with amount" text box below the "New Conversion" button.
2. Type the amount of the currency you want to convert **from**.
3. Click the "New Conversion" button or press "Return."

## To make another conversion with different currencies

- Click the "New Conversion" button after the results of the conversion are shown. The currencies you selected for the last conversion are shown at the top of the scrolling lists,

and the amount of currency you want to convert is set to "1."

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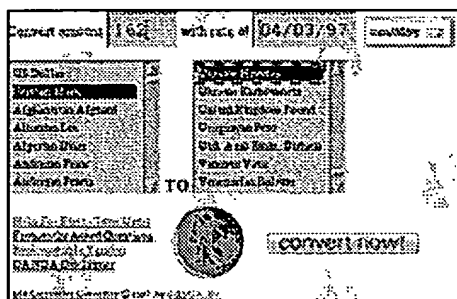
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# How to Convert Currencies

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[\[Overview\]](#) [\[Glossary\]](#)



## Quick summary of how to convert currencies

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You can also:

- [change the date for the exchange rate](#). We offer exchange rates all the way back to January 1, 1990.
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- [make another conversion with different currencies](#)

See also

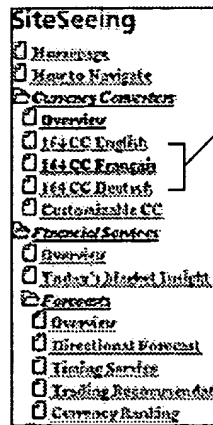
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**To find the 164 Currency Converter in the SiteSeeing frame**



The 164 Currency Converter is in **Currency Converters**



Click "164 CC" for  
the language you want

Enter Web Address: All [Adv. Search](#) [Compare Docume](#)Searched for <http://pacific.commerce.ubc.ca/xr/data.html>**29** Results

\* denotes when site was updated.

**Search Results for Jan 01, 1996 - Oct 18, 2002**

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1 pages	2 pages	4 pages	7 pages	9 pages	6 pages	0 pages
<a href="#">Nov 25, 1996</a> *	<a href="#">Oct 12, 1997</a> *	<a href="#">Feb 11, 1998</a>	<a href="#">Jan 16, 1999</a> *	<a href="#">Feb 29, 2000</a> *	<a href="#">Jan 19, 2001</a>	
	<a href="#">Dec 11, 1997</a> *	<a href="#">Feb 14, 1998</a> *	<a href="#">Jan 17, 1999</a>	<a href="#">Mar 02, 2000</a>	<a href="#">Feb 01, 2001</a>	
		<a href="#">Apr 23, 1998</a> *	<a href="#">Feb 09, 1999</a> *	<a href="#">May 11, 2000</a> *	<a href="#">Apr 06, 2001</a> *	
		<a href="#">Jun 26, 1998</a>	<a href="#">Apr 22, 1999</a> *	<a href="#">May 19, 2000</a>	<a href="#">Jun 03, 2001</a>	
			<a href="#">Apr 28, 1999</a>	<a href="#">Jun 20, 2000</a>	<a href="#">Aug 01, 2001</a>	
			<a href="#">Oct 03, 1999</a> *	<a href="#">Aug 15, 2000</a>	<a href="#">Oct 19, 2001</a> *	
			<a href="#">Oct 13, 1999</a> *	<a href="#">Oct 18, 2000</a> *		
				<a href="#">Oct 19, 2000</a>		
				<a href="#">Dec 07, 2000</a>		

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## Exchange Rate Service

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To retrieve data, select the time period and output format options and check all the currencies you would like to include in the output. Then click on the "retrieve" button. This archive only contains historic exchange rate data until yesterday. Consult the [data availability chart](#) on the time periods for which data are available.

**Exchange rates are vis-à-vis the Canadian Dollar.**

Quotation	Time Period	Output Format
<input checked="" type="radio"/> volume notation e.g., ¥/\$, £/\$.  <input type="radio"/> price notation e.g., \$/¥ \$/£.	Start Date: <div style="display: flex; align-items: center;"> <input style="width: 40px; text-align: center;" type="text" value="1"/> <input style="width: 40px; text-align: center;" type="text" value="Jan"/> <input style="width: 40px; text-align: center;" type="text" value="1996"/> </div> End Date: <div style="display: flex; align-items: center;"> <input style="width: 40px; text-align: center;" type="text" value="31"/> <input style="width: 40px; text-align: center;" type="text" value="Dec"/> <input style="width: 40px; text-align: center;" type="text" value="1996"/> </div>	Format: <input type="text" value="plain"/> Table Transposition <input type="text" value="Day / Currency"/> Country identification: <input type="text" value="ISO codes"/>
<b>Currencies</b>		
<input type="checkbox"/> American Dollars <input type="checkbox"/> Angolan Kwanzas <input type="checkbox"/> Argentinian Pesps <input type="checkbox"/> Australian Dollars <input type="checkbox"/> Austrian Schillings <input type="checkbox"/> Bahamian Dollars <input type="checkbox"/> Barbados Dollars <input type="checkbox"/> Belgian Francs <input type="checkbox"/> Bermudian Dollars <input type="checkbox"/> Brazilian Reals <input type="checkbox"/> British Pounds <input type="checkbox"/> Chilean Pesos <input type="checkbox"/> Chinese Renmimbi <input type="checkbox"/> Czech Koruna <input type="checkbox"/> Danish Kroner <input type="checkbox"/> Dominican Rep. Pesos <input type="checkbox"/> Dutch Guilders <input type="checkbox"/> East Caribbean Dollars <input type="checkbox"/> Egyptian Pounds <input type="checkbox"/> European Currency Units <input type="checkbox"/> Finnish Markka <input type="checkbox"/> French Francs <input type="checkbox"/> German Marks <input type="checkbox"/> Greek Drachmas	<input type="checkbox"/> Guatemalan Quetzales <input type="checkbox"/> Haitian Gourdes <input type="checkbox"/> Honduran Lempiras <input type="checkbox"/> Hong Kong Dollars <input type="checkbox"/> Hungarian Forint <input type="checkbox"/> Icelandic Krona <input type="checkbox"/> Indian Rupees <input type="checkbox"/> Indonesian Rupiah <input type="checkbox"/> Irish Punt <input type="checkbox"/> Israeli New Shekels <input type="checkbox"/> Italian Lira <input type="checkbox"/> Jamaican Dollars <input type="checkbox"/> Japanese Yen <input type="checkbox"/> Jordanian Dinars <input type="checkbox"/> Kenyan Schillings <input type="checkbox"/> Malawi Kwachas <input type="checkbox"/> Malaysian Ringgit <input type="checkbox"/> Mexican New Pesos <input type="checkbox"/> Mozambique Meticals <input type="checkbox"/> New Zealand Dollars <input type="checkbox"/> Nigerian Nairas <input type="checkbox"/> Norwegian Kroner <input type="checkbox"/> Pakistani Rupees <input type="checkbox"/> Peruvian New Soles	<input type="checkbox"/> Philippines Pesos <input type="checkbox"/> Polish Zloty <input type="checkbox"/> Portugese Escudo <input type="checkbox"/> Russian Rubles <input type="checkbox"/> Saudi Arabian Riyal <input type="checkbox"/> Special Drawing Rights <input type="checkbox"/> Singapore Dollars <input type="checkbox"/> South African Rand <input type="checkbox"/> South Korean Won <input type="checkbox"/> Spanish Pesetas <input type="checkbox"/> Sudanese Dinars <input type="checkbox"/> Swedish Krona <input type="checkbox"/> Swiss Francs <input type="checkbox"/> Taiwan Dollars <input type="checkbox"/> Thai Baht <input type="checkbox"/> Trinidad and Tobago Dollars <input type="checkbox"/> Turkish Lira <input type="checkbox"/> Venezuelan Bolivar  <div style="text-align: center;"><i>Commodities</i></div> <input type="checkbox"/> Gold Ounce (New York) <input type="checkbox"/> Silver Ounce (New York) <input type="checkbox"/> Platinum Ounce (New York)

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# PACIFIC Exchange Rate Service

## Retrieval Interface

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**NEW! Exchange rates are vis-à-vis the selected base currency.**

The original data are all vis-à-vis the Canadian Dollar. There is a loss of accuracy in using other base currencies, and differences to other spot markets may occur due to differences in trading dates and time, and imperfect arbitrage.

Quotation	Time Period	Output Format
<input type="radio"/> volume notation e.g., ¥/\$, £/\$.	Start Date: <input type="text" value="1"/> <input type="text" value="Jan"/> <input type="text" value="1997"/> End Date: <input type="text" value="31"/> <input type="text" value="Dec"/> <input type="text" value="1997"/>	Format: <input type="text" value="plain"/> Table Transposition <input type="text" value="Day / Currency"/> Country identification: <input type="text" value="ISO codes"/>
<b>Base Currency</b>		
<input checked="" type="radio"/> Canadian Dollars <input type="radio"/> German Marks	<input type="radio"/> American Dollars <input type="radio"/> Japanese Yen	<input type="radio"/> British Pounds <input type="radio"/> French Francs
<b>Currencies</b>		
<input type="checkbox"/> American Dollars <input type="checkbox"/> Argentinian Pesos <input type="checkbox"/> Australian Dollars <input type="checkbox"/> Austrian Schillings <input type="checkbox"/> Bahamian Dollars <input type="checkbox"/> Barbados Dollars <input type="checkbox"/> Belgian Francs <input type="checkbox"/> Bermudian Dollars <input type="checkbox"/> Brazilian Reals <input type="checkbox"/> British Pounds <input type="checkbox"/> Chilean Pesos <input type="checkbox"/> Chinese Renmimbi <input type="checkbox"/> Czech Koruna <input type="checkbox"/> Danish Kroner <input type="checkbox"/> Dutch Guilders	<input type="checkbox"/> Greek Drachmas <input type="checkbox"/> Hong Kong Dollars <input type="checkbox"/> Hungarian Forint <input type="checkbox"/> Icelandic Krona <input type="checkbox"/> Indian Rupees <input type="checkbox"/> Indonesian Rupiah <input type="checkbox"/> Irish Punt <input type="checkbox"/> Israeli New Shekels <input type="checkbox"/> Italian Lira <input type="checkbox"/> Jamaican Dollars <input type="checkbox"/> Japanese Yen <input type="checkbox"/> Jordanian Dinars <input type="checkbox"/> Malaysian Ringgit <input type="checkbox"/> Mexican New Pesos <input type="checkbox"/> New Zealand Dollars	<input type="checkbox"/> Russian Rubles <input type="checkbox"/> Saudi Arabian Riyal <input type="checkbox"/> Special Drawing Rights <input type="checkbox"/> Singapore Dollars <input type="checkbox"/> South African Rand <input type="checkbox"/> South Korean Won <input type="checkbox"/> Spanish Pesetas <input type="checkbox"/> Sudanese Dinars <input type="checkbox"/> Swedish Krona <input type="checkbox"/> Swiss Francs <input type="checkbox"/> Taiwan Dollars <input type="checkbox"/> Thai Baht <input type="checkbox"/> Trinidad and Tobago Dollars <input type="checkbox"/> Turkish Lira <input type="checkbox"/> Venezuelan Bolivar

<input type="checkbox"/> Egyptian Pounds <input type="checkbox"/> European currency unit <input type="checkbox"/> Finnish Markka <input type="checkbox"/> French Francs <input type="checkbox"/> German Marks	<input type="checkbox"/> Norwegian Kroner <input type="checkbox"/> Pakistani Rupees <input type="checkbox"/> Philippines Pesos <input type="checkbox"/> Polish Zloty <input type="checkbox"/> Portugese Escudo	<i>Commodities</i> <input type="checkbox"/> Gold Ounce (New York) <input type="checkbox"/> Silver Ounce (New York) <input type="checkbox"/> Platinum Ounce (New York)
<input type="button" value="Reset"/>	<input type="button" value="Retrieve"/>	

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# PACIFIC

## Exchange Rate Service

### Data Availability Chart

as of November 13, 1996

ISO 4217	Currency	First Date	Data Points	Map
USD	American Dollars	1971/01/04	6518	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
BEF	Belgian Francs	1971/01/04	6512	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
GBP	British Pounds	1971/01/04	6512	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
FRF	French Francs	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
DEM	German Marks	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
ITL	Italian Lira	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
JPY	Japanese Yen	1971/01/04	6506	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
SEK	Swedish Krona	1971/01/04	6511	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
CHF	Swiss Francs	1971/01/04	6513	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
ESP	Spanish Pesetas	1973/01/02	6012	--XXXXXXXXXXXXXXXXXXXXXXXX
HKD	Hong Kong Dollars	1981/01/02	4014	-----XXXXXXXXXXXXXXXXXXXX
SGD	Singapore Dollars	1981/01/02	3457	-----XXXXXXXXXXXXXXXXXXXX
KRW	South Korean Won	1981/04/13	3876	-----XXXXXXXXXXXXXXXXXXXX
TWD	Taiwan Dollars	1983/10/03	3003	-----XXXXXXXXXXXXXXXXXXXX
AUD	Australian Dollars	1991/01/02	1489	-----XXXXXXXXXXXX
ATS	Austrian Schillings	1991/01/02	1495	-----XXXXXXXXXXXX
DKK	Danish Kroner	1991/01/02	1495	-----XXXXXXXXXXXX
NLG	Dutch Guilders	1991/01/02	1489	-----XXXXXXXXXXXX
FIM	Finnish Markka	1991/01/02	1495	-----XXXXXXXXXXXX
IEP	Irish Punt	1991/01/02	1471	-----XXXXXXXXXXXX
NZD	New Zealand Dollars	1991/01/02	1471	-----XXXXXXXXXXXX
NOK	Norwegian Kroner	1991/01/02	1495	-----XXXXXXXXXXXX
XDR	Special Drawing Rights	1991/01/02	1504	-----XXXXXXXXXXXX
CNY	Chinese Renmimbi	1993/01/04	950	-----XXXX
XEU	European Currency Units	1993/01/04	975	-----XXXX
GRD	Greek Drachmas	1993/01/04	975	-----XXXX
INR	Indian Rupees	1993/01/04	974	-----XXXX

MYR	Malaysian Ringgit	1993/01/04	975	-----XXXX
PTE	Portugese Escudo	1993/01/04	975	-----XXXX
THB	Thai Baht	1993/01/04	966	-----XXXX
MXP	Mexican New Pesos	1993/07/07	836	-----XXXX
BSD	Bahamian Dollars	1996/02/02	194	-----X
BBD	Barbados Dollars	1996/02/02	194	-----X
BMD	Bermudian Dollars	1996/02/02	194	-----X
CLP	Chilean Pesos	1996/02/02	193	-----X
EGP	Egyptian Pounds	1996/02/02	194	-----X
HUF	Hungarian Forint	1996/02/02	194	-----X
ISK	Icelandic Krona	1996/02/02	194	-----X
IDR	Indonesian Rupiah	1996/02/02	194	-----X
ILS	Israeli New Shekels	1996/02/02	194	-----X
JMD	Jamaican Dollars	1996/02/02	194	-----X
PKR	Pakistani Rupees	1996/02/02	194	-----X
PHP	Philippines Pesos	1996/02/02	194	-----X
PLZ	Polish Zloty	1996/02/02	194	-----X
SUR	Russian Rubles	1996/02/02	194	-----X
SAR	Saudi Arabian Riyal	1996/02/02	194	-----X
ZAR	South African Rand	1996/02/02	194	-----X
TTD	Trinidad and Tobago Dollars	1996/02/02	193	-----X
TRL	Turkish Lira	1996/02/02	193	-----X
VEB	Venezuelan Bolivars	1996/02/02	194	-----X
ARP	Argentinian Pesos	1996/08/06	68	-----X
BRR	Brazilian Reals	1996/08/06	68	-----X
SDD	Sudanese Dinars	1996/08/06	68	-----X
XAU	Gold Ounce (New York)	1996/08/07	67	-----X
XPT	Platinum Ounce (New York)	1996/08/07	67	-----X
XAG	Silver Ounce (New York)	1996/08/07	67	-----X
CSK	Czech Koruna	1996/08/08	66	-----X
JOD	Jordanian Dinar	1996/08/08	66	-----X
AOK	Angolan Kwanzas	1996/10/15	16	-----X
DOP	Dominican Republic Pesos	1996/10/15	18	-----X
XCD	East Caribbean Dollars	1996/10/15	18	-----X
GTQ	Guatemalan Quetzales	1996/10/15	18	-----X
HTG	Haitian Gourdes	1996/10/15	18	-----X
HNL	Honduran Lempiras	1996/10/15	18	-----X



KES	Kenyan Schillings	1996/10/15	18	-----X
MWK	Malawi Kwachas	1996/10/15	18	-----X
MZM	Mozambique Meticals	1996/10/15	16	-----X
NGN	Nigerian Nairas	1996/10/15	18	-----X
PEN	Peruvian New Soles	1996/10/15	18	-----X
The PACIFIC database currently contains 69 currencies and commodities.				

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FAX: +1-604-822-8477

Postal Address:  
 Prof. W. Antweiler  
 University of British Columbia - Faculty of Commerce and Business Administration  
 2053 Main Mall  
 Vancouver, BC, V6T 1Z2  
 Canada

# PACIFIC

Policy Analysis Computing & Information Facility In Comm

## EXCHANGE RATE SERVICE

*provided by*  
 Prof. Werner Antweiler  
 University of British Columbia, Vancouver, Canada

This service provides access to current and historic daily exchange rates through an on-line database retrieval and plotting system. Also provided is a list of the currencies of the world with information on each country's exchange regime and ISO-4217 currency code. Analyses and trend projections for the Canadian Dollar, the U.S. Dollar, and the Euro are available as well. This service is dedicated to the support of academic research and teaching in the field of exchange rate economics.

### Current FX Rates

[Today's Exchange Rates](#) (updated each noon Pacific Time; 53 key currencies)

[Supplementary Issue](#) (about 200 countries, updated daily, but less reliable)

[Real-Time Rates](#) (via Yahoo! Finance, for top 8 currencies)

### Canadian Dollar Services

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[Key Interest Rates](#)

[Trends](#) (twice-weekly)

[Noon Spot Rates](#) (Official Quotes from Bank of Canada)

[Forward Rates](#) (weekly)

[Real-Time USD/CAD Rates](#) (via Yahoo!-Finance)

[A History of the Canadian Dollar](#) (via Bank of Canada)

[Average 2001 Exchange Rates for Tax Purposes](#) (via Canada Customs and Revenue Agency)

### U.S. Dollar Services

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featuring single series and comparative plots, moving averages, volatility charts, and other special features

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[What is Purchasing Power Parity?](#) - Facts and Figures

[What are Special Drawing Rights?](#)

[European Currency Unit \(ECU\)](#)  
[Historic Fact Sheet](#)

[Historic Annual Average Rates 1948-2001 \(PDF\)](#) **UPDATED**

Daily 4pm Rates (USD base)  
 (daily from TeleRate, includes  
 forward rates)  
Analysis (daily)

per 1 US Dollar  
per 1 Canadian Dollar  
per 1 British Pound

### Euro Services

Analysis (daily)  
Trends (twice-weekly)

### Currency Converters

Personal Currency Assistant - a  
 service provided by Xenon  
 Laboratories

### Other information

Links to other Exchange Rate  
Services on the Web

Frequently Asked Questions

ISO-4217 Currency Codes

ISO-3166 Country Codes

Julian Dates

### Key Cross-Currency Rates

	USD	EUR	GBP	JP1	CHF	CAD	AUD	MXN
USD		0.97093	1.5463	0.79677	0.66058	0.63609	0.55022	0.10
EUR	1.0299		1.5926	0.82062	0.68036	0.65514	0.56669	0.10
GBP	0.64669	0.62789		0.51526	0.42719	0.41135	0.35582	0.064
JPY	125.51	121.86	194.08		82.908	79.834	69.056	12.5
CHF	1.5138	1.4698	2.3409	1.2062		0.96293	0.83293	0.15
CAD	1.5721	1.5264	2.4310	1.2526	1.0385		0.86500	0.15
AUD	1.8175	1.7646	2.8104	1.4481	1.2006	1.1561		0.18
MXN	9.9816	9.6914	15.435	7.9530	6.5937	6.3492	5.4921	

Rates as of Fri 2002/10/18.

USD = U.S. Dollar; EUR = European Euro; GBP = British Pound; JPY = Japanese Yen; JP1 = 100 Japanese Yen; CHF = Swiss Franc; CAD = Canadian Dollar; AUD = Australian Dollar; MXN = Mexican Peso. Read vertically to find how much of a foreign currency buys 1 USD. For example, the first column ("USD") tells you the value of 1 USD in EUR, GBP, JPY and so on. Read horizontally to find the price of foreign currencies. For example, the first row tells you the USD price of 1 EUR, 100 JPY, and so on.

The exchange rate data published on this service were obtained from various sources. Commencing December 1, 1998, noon spot rates are obtained from the Bank of Canada. Exchange rates are stored immediately in the database of historic exchange rates shortly after they are published; this occurs at 11:30am Pacific Time (2:30pm Eastern).

Additional exchange rate data are provided daily from a variety of sources, including closing rates for the USD for some currencies are obtained from Dow Jones Telerate. These are posted in the U.S. section of this service.

PACIFIC makes no warranties, express or implied, as to the accuracy of the data published. This service was introduced on February 2, 1996. The earliest historic exchange rates available are for 1971; however, for many currencies data are only available for the time period after the introduction of this service (Feb 96).

Exchange rates for the IMF's Special Drawing Rights are derived from the five currencies of the SDR. Note that the time series for the Euro and the ECU have amalgamated. Prior to January 1, 1999, the Euro time series contains ECU data.

# PACIFIC Exchange Rate Service

YYYY/MM/DD	2002/10/18
ARS/CAD	2.2994

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# Purchasing Power Parity

## Facts and Figures

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### What is Purchasing Power Parity?

Purchasing power parity (PPP) is a theory which states that exchange rate currencies are in equilibrium when their purchasing power is the same in the two countries. This means that the exchange rate between two countries equal the ratio of the two countries' price level of a fixed basket of services. When a country's domestic price level is increasing (i.e., experiences inflation), that country's exchange rate must depreciate in return to PPP.

The basis for PPP is the "law of one price". In the absence of transportation other transaction costs, competitive markets will equalize the price of a good in two countries when the prices are expressed in the same currency. For example, a particular TV set that sells for 750 Canadian Dollars in Vancouver should cost 500 US Dollars [USD] in Seattle when the exchange rate between Canada and the US is 1.50 CAD/USD. If the price of the TV in Seattle was only 700 CAD, consumers in Seattle would prefer buying the TV in Vancouver. If this process (called "arbitrage") is carried out at a large scale, consumers buying Canadian goods will bid up the value of the Canadian dollar, thus making Canadian goods more costly to them. This process continues until goods have again the same price. There are three caveats with this law of one price: (1) As mentioned above, transportation costs, barriers to trade, and other transaction costs, can be significant. (2) There must be competitive markets for the goods and services in both countries. (3) The law of one price only applies to tradeable goods and services. Immovable goods such as houses, and many services that are local, are not traded between countries.

Economists use two versions of Purchasing Power Parity: absolute PPP and relative PPP. Absolute PPP was described in the previous paragraph; it refers to the equalization of price levels across countries. Put formally, the exchange rate between Canada and the United States  $E_{CAD/USD}$  is equal to the price level in Canada  $P_{CAN}$  divided by the price level in the United States  $P_{USA}$ . An assumed price level ratio  $P_{CAN}/P_{USD}$  implies a PPP exchange rate of 1.3 CAD per 1 USD. If today's exchange rate  $E_{CAD/USD}$  is 1.5 CAD per 1 USD, PPP theory implies the CAD will appreciate (get stronger) against the USD, and the USD will depreciate (get weaker) against the CAD.

Relative PPP refers to rates of changes of price levels, that is, inflation. The relative PPP proposition states that the rate of appreciation of a currency is equal to the difference in inflation rates between the foreign and the home country. For example, if Canada has an inflation rate of 1% and the US has an inflation rate of 3%, the US Dollar will depreciate against the Canadian Dollar by 2% per year. This proposition holds well empirically especially when the inflation difference is large.

### **Does PPP determine exchange rates in the short term?**

No. Exchange rate movements in the short term are news-driven. Announcements about interest rate changes, changes in perception of the growth path of a country and the like are all factors that drive exchange rates in the short run. The long run comparison, describes the long run behaviour of exchange rates. The forces behind PPP will eventually equalize the purchasing power of currencies, but it can take many years, however. A time horizon of 4-10 years would be typical.

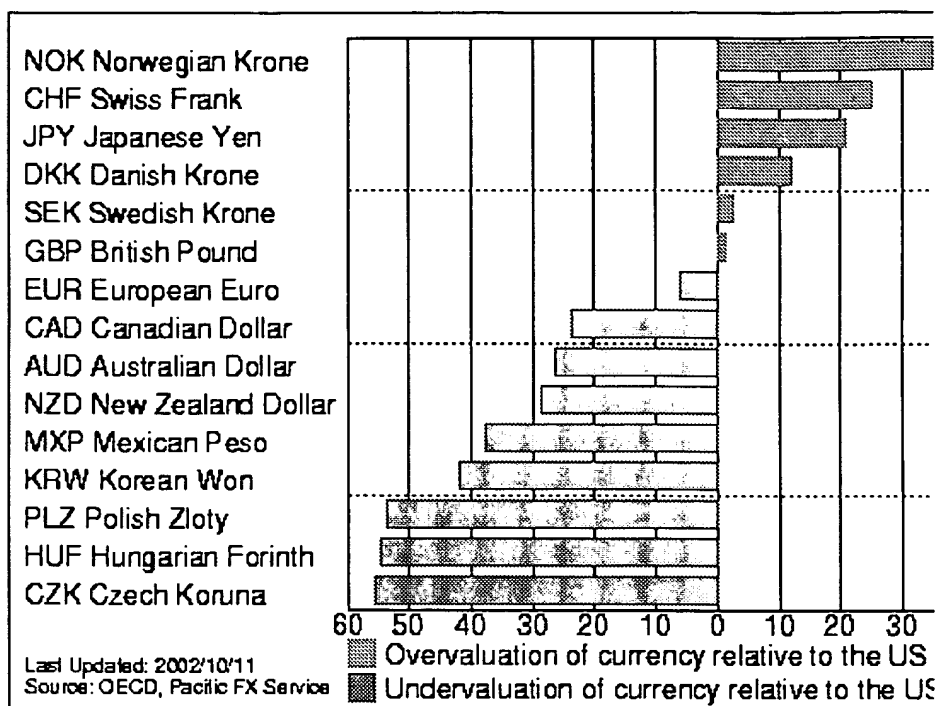
### **How can PPP be calculated?**

The simplest way to calculate purchasing power parity between two countries is to compare the price of a "standard" good that is in fact identical across countries. Every year *The Economist* magazine publishes a light-hearted version called the "Hamburger Index" that compares the price of a McDonald's hamburger across the world. More sophisticated versions of PPP look at a large number of different goods and services. One of the key problems is that people in different countries have very different sets of goods and services, making it difficult to compare purchasing power between countries.

### **According to PPP, by how much are currencies overvalued or undervalued?**

The following chart compares the PPP of a currency with its actual exchange rate. The chart is updated periodically to reflect the current exchange rate. It is updated about twice a year to reflect new estimates of PPP. The PPP estimates are taken from studies carried out by the Organization for Economic Cooperation and Development (OECD) and others; however, they should not be considered "definitive". Different methods of calculation will arrive at different PPP estimates.

The currencies listed below are compared to the US Dollar. A green bar indicates that the local currency is overvalued by the percentage figure shown on the bar; the currency is thus expected to depreciate against the US Dollar in the long run. A red bar indicates undervaluation of the local currency; the currency is thus expected to appreciate against the US Dollar in the long run.



### Where can I get more information?

- **OECD National Accounts.**  
The OECD publishes PPPs for all OECD countries. You can retrieve the PDF file [2001 PPP rates](#) from this site. Also available is a table with the OECD's [1970-200 rates](#). This is a comma-separated file that can be easily imported into a spreadsheet [[Alternate link, XLS file](#); [alternate link, PDF file](#)]
- From *The Economist* magazine: [The Big Mac Index](#) - as they put it "world's most accurate financial indicator (to be based on a fast food with a ten-year retrospective on burgeronomics)"  
Check out the latest [Big Mac index](#) for 2001.
- Wilfred J. Ethier: *Modern International Economics*, 3rd edition. W. Norton & Comp., New York/London: 1995. Chapter 18, section 2 on "P Linkages" contains an excellent non-technical overview of PPP
- Kenneth Rogoff: *The Purchasing Power Parity Puzzle*, *Journal of Economic Literature*, 34(2), June 1996, pages 647-668.  
This recent survey provides an overview of developments with respect to research including the emerging consensus that deviations from PPP do damp out but only slowly, at roughly fifteen percent per year. It remains difficult to explain why the speed of convergence to PPP is so slow.
- For the more technically minded, I recommend searching the [EconLit](#) database for recent research papers on PPP. This is a very active branch of economic research, both theoretically and empirically.



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1996	1997	1998	1999	2000	2001	2002
0 pages	1 pages	8 pages	7 pages	18 pages	121 pages	1 pages
<u>Dec 10, 1997</u> *	<u>Jan 10, 1998</u> *	<u>Jan 25, 1999</u> *	<u>Feb 26, 2000</u> *	<u>Jan 18, 2001</u> *	<u>Jan 27, 2002</u> *	
	<u>Feb 06, 1998</u> *	<u>Feb 08, 1999</u> *	<u>Feb 29, 2000</u> *	<u>Jan 18, 2001</u> *		
	<u>Feb 09, 1998</u>	<u>Feb 20, 1999</u> *	<u>Mar 02, 2000</u> *	<u>Jan 19, 2001</u> *		
	<u>Apr 19, 1998</u> *	<u>Apr 18, 1999</u> *	<u>Mar 02, 2000</u> *	<u>Jan 19, 2001</u> *		
	<u>May 21, 1998</u> *	<u>Oct 07, 1999</u> *	<u>Mar 03, 2000</u> *	<u>Jan 19, 2001</u> *		
	<u>Dec 05, 1998</u> *	<u>Nov 16, 1999</u> *	<u>Apr 08, 2000</u> *	<u>Jan 19, 2001</u> *		
	<u>Dec 06, 1998</u>	<u>Nov 22, 1999</u> *	<u>Aug 15, 2000</u> *	<u>Jan 30, 2001</u> *		
	<u>Dec 12, 1998</u> *		<u>Aug 16, 2000</u>	<u>Feb 02, 2001</u> *		
			<u>Oct 18, 2000</u> *	<u>Feb 24, 2001</u> *		
			<u>Oct 18, 2000</u> *	<u>Apr 04, 2001</u> *		
			<u>Oct 19, 2000</u>	<u>Apr 18, 2001</u> *		
			<u>Oct 19, 2000</u> *	<u>Apr 18, 2001</u> *		
			<u>Nov 18, 2000</u> *	<u>May 03, 2001</u> *		
			<u>Dec 05, 2000</u> *	<u>May 03, 2001</u> *		
			<u>Dec 07, 2000</u> *	<u>May 06, 2001</u> *		
			<u>Dec 17, 2000</u> *	<u>May 13, 2001</u> *		
			<u>Dec 18, 2000</u> *	<u>May 15, 2001</u> *		
			<u>Dec 18, 2000</u> *	<u>May 15, 2001</u> *		
				<u>May 15, 2001</u> *		
				<u>May 21, 2001</u> *		
				<u>May 26, 2001</u> *		
				<u>May 27, 2001</u> *		
				<u>May 27, 2001</u> *		
				<u>May 29, 2001</u> *		
				<u>May 31, 2001</u> *		
				<u>Jun 01, 2001</u> *		
				<u>Jun 09, 2001</u> *		
				<u>Jun 11, 2001</u> *		
				<u>Jun 20, 2001</u> *		
				<u>Jun 21, 2001</u> *		
				<u>Jun 25, 2001</u> *		
				<u>Jun 28, 2001</u> *		
				<u>Jun 28, 2001</u> *		
				<u>Jun 29, 2001</u> *		
				<u>Jun 29, 2001</u> *		
				<u>Jun 30, 2001</u> *		
				<u>Jul 01, 2001</u> *		
				<u>Jul 02, 2001</u> *		
				<u>Jul 03, 2001</u> *		
				<u>Jul 07, 2001</u> *		
				<u>Jul 11, 2001</u> *		

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Jul 13, 2001 \*  
Jul 13, 2001 \*  
Jul 22, 2001 \*  
Sep 26, 2001 \*  
Oct 10, 2001 \*  
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[Dec 12, 2001](#) \*  
[Dec 13, 2001](#) \*  
[Dec 14, 2001](#) \*  
[Dec 15, 2001](#) \*  
[Dec 16, 2001](#) \*  
[Dec 17, 2001](#) \*  
[Dec 17, 2001](#) \*

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x

## 164 Currency Converter

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Convert amount <input style="width: 80px;" type="text" value="1"/>	with rate of <input style="width: 80px;" type="text" value="12/10/97"/>	<input style="width: 80px;" type="text" value="mm/dd/yy"/>
<div style="border: 1px solid black; padding: 2px;"> US Dollar . USD  German Mark . DEM  Afghanistan Afghani . AFA  Albanian Lek . ALL  Algerian Dinar . DZD  Andorran Franc . ADF  Andorran Peseta . ADP </div>	TO	<div style="border: 1px solid black; padding: 2px;"> US Dollar . USD  German Mark . DEM  Afghanistan Afghani . AFA  Albanian Lek . ALL  Algerian Dinar . DZD  Andorran Franc . ADF  Andorran Peseta . ADP </div>
Currency Symbol: <input style="width: 60px;" type="text"/>		Currency Symbol: <input style="width: 60px;" type="text"/>
<input style="width: 150px;" type="text" value="Interbank Rate"/>		<input type="button" value="Convert Now!"/>

[Set Converter Preferences](#)  
[FAQ](#) . [Disclaimer](#)

### **Don't Miss Out the Wallet-sized Currency Table!**

You can view any exchange rates among the 164 currencies for any day since 1 January 1990 through today. The currency converter is updated daily at 8:00 p.m. EST.

164 Currency Converter © 1997, by OANDA, Inc.

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### **What are OANDA's other exciting financial services?**

- [Practical Cheat Sheet for Travelers](#)
- [Advanced currency forecasts](#)
- [Easy Customizable Currency Converter](#) with the look and feel of your Web site
- Popular currency converter in other languages:
  - German version: [Wechselkurse für 164 Währungen](#)
  - French version: [Convertisseur de 164 monnaies](#)
  - Italian version: [Cambiavalute fra 164 divise](#)

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## Foreign Exchange Protocol

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### What is FXP ?

The Foreign Exchange Protocol (FXP) is a simple, automatic way of retrieving currency exchange rates over the Internet. Free client software is available from this page that will allow your computer to query a free server at [OANDA](#) and have it convert amounts from one currency to another, using OANDA's database of daily exchange rates for 164 different currencies.

### Uses

- display the prices on your web page in your customer's currency
- automatically convert prices in expense reports, quotations, purchase orders, ...
- produce currency exchange rate tables and graphs
- use in any software that needs to convert currencies

### Features

- single conversions or time series
- specify bid or ask prices
- mean, minimum, and maximum prices available
- historical rates; specify the day of the conversion from yesterday back as far as 1990 (for many currencies)
- get a list of currency symbols
- translate a currency symbol into the currency name

### What is Available

The software package contains a library of routines written in C which will contact an FXP server and convert currencies. There are also a few sample programs to show you how to use the routines. There is some [documentation](#) for the programs and routines.

There is a [protocol document](#) that describes the FXP protocol, in case you want to write your own routines.

### Try It Out

Here is a light hearted demonstration of a web page that uses FXP to display prices in any currency. To start the demonstration, please select the currency that you would like to see prices quoted in and press Continue:

Continue

Afghanistan Afghani	
Albanian Lek	
Algerian Dinar	
Andorran Franc	
Andorran Peseta	
Angolan New Kwanza	
Argentine Peso	

---

### Download the Software

Download the [OANDA FXP client software](#).

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# Foreign Exchange Protocol Specification

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## Version 1.1

Dave Galloway

OANDA, Inc.

October 1, 1997

### Introduction

The Foreign Exchange Protocol (FXP) allows a client to obtain currency exchange rate information from server over the Internet. The protocol uses an underlying reliable stream protocol, currently TCP/IP.

The server listens for connections to TCP port 5011. This port number has not been allocated by any official body, and is subject to change.

A client creates a connection to the server, and sends one or more requests over the connection. Each request is answered by an individual response from the server over the same connection. Requests are always answered in sequence. The connection may be broken by either the client or the server. Responses that are lost due to a broken connection are not re-transmitted.

Requests and responses are transmitted using the ASCII character set. Each request consists of a number of lines of text, followed by a single blank line. Each response consists of a number of lines of header text, followed by a single blank line, optionally followed by a number of lines of data, followed by a single blank line. All lines of text (including blank lines) are terminated by the two character sequence <carriage return> <line feed>. This retains compatibility with the telnet protocol, and telnet can be used to send fxp requests to a server.

The protocol is case insensitive, and requests and responses may be sent in either upper or lower case.

### Requests

Each request must begin with a line giving the protocol version used:

```
fxp/1.1
```

The protocol version line is followed by one or more request specification lines, in any order. Each request specification line consists of a tag, followed by a single colon character, followed by a single space character, followed by a value. A specific tag may only be used once per request. Values revert to their default values after each request.

- Query: currencies

The Query line is optional, and specifies the type of FXP query. The value must be one of quote or currencies. A query type of quote is used to obtain information about the conversion rate between two

currencies. A query type of currencies is used to obtain currency symbol codes and currency name. The default value is quote.

- Quotecurrency: CAD

If the query type is quote, then the Quotecurrency line is required, and specifies the currency that the client wants to know the price of. The value can be any valid 3 letter ISO or OANDA currency code.

If the query type is currencies, then the Quotecurrency line is optional. If present, it specifies the currency symbol that the client wants to know the name of.

- Quotecurrency: {CHF 125.75}

Optionally, the Quotecurrency line may be given with a value consisting of a left curly brace character followed by a 3 letter currency code, followed by a single space character, followed by a floating point number, followed by a right curly brace character. This variant allows the client to specify the amount of the currency to be converted. The default amount is 1.0 units of the currency.

- Basecurrency: USD

The Basecurrency line is optional, and is used to specify the currency units used in the response. The value can be any valid 3 letter ISO or OANDA currency code. The default Basecurrency is USD.

- Date: Mon, 02 Jun 1997 13:37:56 GMT

The Date line is optional, and is used to specify the date and time to be used when retrieving the conversion rate information. The value of the date tag must be in the form specified in RFC 822, as modified by RFC 1123. The default Date value is the current date and time.

- Timeincrement: 86400

The Timeincrement line is optional, and specifies the number of seconds between adjacent conversion results. The value must be a positive integer. The default Timeincrement value is 60 seconds.

- Nprices: 12

The Nprices line is optional, and specifies the number of conversion results required. The value must be a positive integer. If the Nprices value is greater than 1, the specified number of conversions will be performed. The date and time of the first conversion will be given by the Date line. This date and time will be incremented for each subsequent conversion by the amount given on the Timeincrement line. The default Nprices value is 1.

- Queryid: 129

The Queryid line is optional. The value of the Queryid tag must be a single token with no embedded space or tab characters. There must be no more than 80 characters in the value. If a Queryid line is present in a request, a Queryid line with the same tag will be included in the response to that request.

- Quoteperiod: spot



The Quoteperiod line is optional. It specifies the time period used to collect the data used in the response. A value of day asks for the statistics that best summarize the entire day's prices for the Quotecurrency. A value of spot asks for the statistics that best describe the prices at the specified date and time. The default Quoteperiod value is day.

- Quotetype: bid ask max\_bid

The Quotetype line is optional. The value of the tag is a non-empty list of tokens, separated by single space characters. The legal tokens are:

bid	the median price offered by people willing to buy the Quotecurrency
ask	the median price desired by people willing to sell the Quotecurrency
min_bid	the minimum bid price
min_ask	the minimum ask price
max_bid	the maximum bid price
max_ask	the maximum ask price
fractile_low_bid	the price that 75% of the buyers are willing to pay
fractile_low_ask	the price that 25% of the sellers are willing to accept
fractile_high_bid	the price that 25% of the buyers are willing to pay
fractile_high_ask	the price that 75% of the sellers are willing to accept
num_ticks	the total number of price quotations seen during the Quoteperiod
date	the date of the data used in composing the response

The default Quotetype value is bid.

## Responses

Each response begins with a line containing the protocol used, followed by a single space character, followed by a three digit status code, optionally followed by text that may be passed to a user explaining the status code:

```
fxp/1.1 200 ok
```

The first digit of each response code specifies the class of the response. Response codes starting with 2 specify a successful response, and such responses are followed by lines of data. Response codes starting with 4 indicate an illegal query. Response codes starting with 5 indicate a server error.

### Response code Possible user text explanations

200	response ok
400	bad request
404	not found
500	server internal error
501	not implemented
503	unavailable
505	version unsupported

The response code line is followed by zero or more response header lines, in any order. Each response header line consists of a tag, followed by a single colon character, followed by a single space character, followed by a value. A specific tag will only be used once per response.

- Content-lines: 1

If the response code started with a 2, the response headers will be followed by lines of data. The Content-lines value will be present, and will specify how many lines of data will follow.

- Queryid: 129

The Queryid line will be present if it was successfully recognized in the request, regardless of the value of the response code. The value of the Queryid will be equal to the value given in the request.

The request headers will be terminated by a single blank line. If the Content-lines header was present the blank line will be followed by the given number of lines of data, terminated by another blank line.

If the query type was quote, each line of data will contain one value for each token given in the Quotetype line. The values will be separated by single space characters. If the Quotetype token was date, the value will be a date string given in the standard date format specified in RFC 822, as modified by RFC 1123. For all other tokens, if the server can answer the query, the value will be a single floating point number such as:

1.2645

If the server can not answer the query, the value will be the token:

na

for "not available".

If the query type was currencies, each line of data will start with a three letter ISO (or OANDA) currency symbol, followed by a single space character, followed by the name of the currency in English. If the quote currency was specified in the request, the response will contain a single line containing the symbol name of that currency. If the quote currency was not specified, the response will contain multiple lines, one for each of the possible currencies.

## Examples

The following table contains possible FXP requests and responses:

Request	Corresponding Response
fxp/1.1 queryid: 0 basecurrency: DEM quote currency: FJD date: Mon, 06 Jul 1992 12:34:44 GMT nprices: 3 timeincrement: 172800	fxp/1.1 200 ok Queryid: 0 Content-lines: 3 na na na
fxp/1.1 queryid: 3	fxp/1.1 200 ok Queryid: 3

basecurrency: ITL quotecurrency: JPY date: Sat, 07 May 1994 14:29:16 GMT nprices: 2 timeincrement: 172800	Content-lines: 2 15.579100 15.483700
fxp/1.1 quotecurrency: CHF date: Tue, 03 Nov 1992 01:02:20 GMT	fxp/1.1 200 ok Content-lines: 1 0.714000
fxp/1.1 quotecurrency: CAD	fxp/1.1 200 ok Content-lines: 1 0.72270000
fxp/1.1 quotecurrency: {FRF 1000} date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 200 ok Content-lines: 1 174.800000
fxp/1.1 quotecurrency: {FRF 1000} date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 400 invalid quotecurrency
fxp/1.1 queryid: 41 quotecurrency: {FRF 1000} date: Sat, 07 May 1994 14:29:16 GMT	fxp/1.1 400 invalid quotecurrency Queryid: 41
fxp/1.1 date: Wed, 05 Feb 1997 01:00:00 GMT quotetype: bid ask min_bid max_bid quotecurrency: CAD nprices: 3 timeincrement: 86400	fxp/1.1 200 ok Content-lines: 3 0.74390000 0.74420000 0.74250000 0.74480000 0.74180000 0.74210000 0.73860000 0.74340000 0.74060000 0.74100000 0.73880000 0.74210000
fxp/1.1 date: Wed, 05 Feb 1997 01:00:00 GMT quotetype: date bid ask quotecurrency: CAD nprices: 3 timeincrement: 86400	fxp/1.1 200 ok Content-lines: 3 Wed, 05 Feb 1997 00:00:00 GMT 0.74390000 0.74420 Thu, 06 Feb 1997 00:00:00 GMT 0.74180000 0.74210 Fri, 07 Feb 1997 00:00:00 GMT 0.74060000 0.74100
fxp/1.1 quotecurrency: FJD nprices: 3 timeincrement: 86400 quotetype: date bid ask date: Fri, 02 May 1997 12:00:00 GMT	fxp/1.1 200 ok Content-lines: 3 Fri, 02 May 1997 00:00:00 GMT 0.70500000 0.71000 Fri, 02 May 1997 00:00:00 GMT 0.70500000 0.71000 Sun, 04 May 1997 00:00:00 GMT 0.70550000 0.70650
fxp/1.1 query: currencies quotecurrency: CAD	fxp/1.1 200 ok Content-lines: 1 CAD Canadian Dollar



## The Currency \$ite

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Welcome to OANDA, the currency site featuring the Web's most popular [currency converter](#) and state-of-the-art [financial services](#) for currency investing. Read more [about us](#). If you work with currencies, or just spend them, you'll find our site useful and, hopefully, fun.

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### WEB'S MOST POPULAR CURRENCY CONVERTER

- [About Our Currency Converters](#)
- [164 Currency Converter](#)  
(Thu, Dec 11, 1997)
- [Customizable Currency Converter](#)
- [Cheat Sheet for Travelers](#)

### TOOLS FOR FINANCIAL MARKETS

- [Financial Services Overview](#)
- [Today's Market Insight](#)  
(Wed, Dec 10, 1997)
- [Currency Forecasts](#)  
(Thu, Dec 11, 1997)
- [Registration](#)

### NEWS

- OANDA releases new [foreign exchange protocol](#). Free download FXP client software (currently for UNIX only).
- OANDA releases the [German version](#) of the Cheat Sheet for Travelers.
- [Read more](#)

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OANDA, Inc  
599 Lexington Avenue, Suite 2300  
New York, NY 10022  
USA

e-mail: [oanda-info@oanda.com](mailto:oanda-info@oanda.com)  
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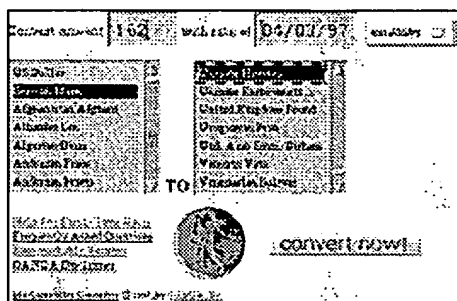
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OANDA

## How to Convert Currencies

[\[Overview\]](#) [\[Glossary\]](#)



### Quick summary of how to convert currencies

Follow these steps to convert currencies.

1. Click the "Currency Converters" folder in the SiteSeeing frame, then choose the language you want **or** click 164 Currency Converter in the OANDA homepage. See [To find the 164 Currency Converter in the SiteSeeing frame](#).
2. Choose a currency or precious metal you want to convert **from** in the left scrolling list. Click the scrolling arrows to see more currency selections.
3. Choose a currency or precious metal you want to convert **to** in the right scrolling list. Click the scrolling arrows to see more currency selections.
4. If you want to change the amount of the currency to convert **from**, click the text box next to "Convert Amount" and type the amount of the currency you want to convert. The default is "1."
5. Click the "Convert Now!" button.

**Important:** All currencies are listed with the name of their country first. For example, the "Peso" for Mexico is listed as "Mexican Peso."

You can also:

- [change the date for the exchange rate](#). We offer exchange rates all the way back to January 1, 1990.
- [choose another date format](#)
- [make another conversion with the same currencies](#)
- [make another conversion with different currencies](#)

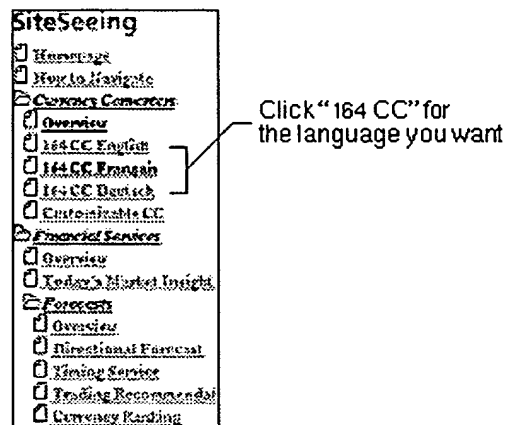
### See also

- [Frequently asked questions about our 164 Currencies Converter](#)
- [Understanding 164 Currency Converter results](#)

- Currencies with few price points

## To find the 164 Currency Converter in the SiteSeeing frame

The 164 Currency Converter is in **Currency Converters**



**Important:** If you see "Requires Javascript" in the SiteSeeing frame instead of the above contents, then your Web browser may not support **Javascript** or be Javascript enabled. Browsers which support Javascript include Internet Explorer 3.x and Netscape Navigator 3.x. If your browser does support Javascript then see your browser's user documentation for more information on enabling Javascript.

The contents of the SiteSeeing frame are also displayed on the OANDA homepage.

## To change the date for the exchange rate

- Click the text box next to "with the rate for" and type the new date. By default the current date is shown. You can enter any date between the current date and January 1, 1990.

## To choose another date format

- Click the drop-down list box and choose a new format. By default the "mm/dd/yy" format for the US is shown.

## To make another conversion with the same currencies

1. Click the "with amount" text box below the "New Conversion" button.
2. Type the amount of the currency you want to convert **from**.
3. Click the "New Conversion" button or press "Return."

## To make another conversion with different currencies

- Click the "New Conversion" button after the results of the conversion are shown. The currencies you selected for the last conversion are shown at the top of the scrolling lists,

and the amount of currency you want to convert is set to "1."

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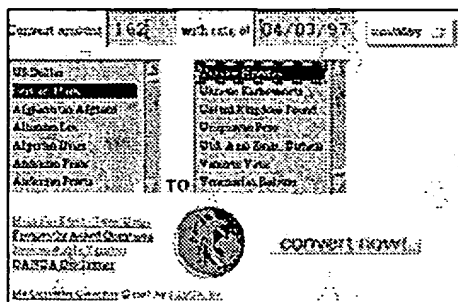
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- ☐ [How to Navigate](#)
- ☐ [Currency Converters](#)
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# How to Convert Currencies

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[\[Overview\]](#) [\[Glossary\]](#)



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- [make another conversion with the same currencies](#)
- [make another conversion with different currencies](#)

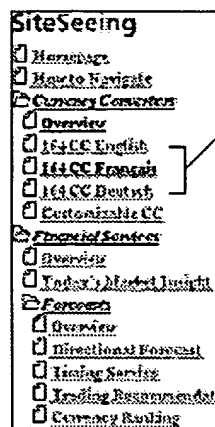
## See also

- [Frequently asked questions about our 164 Currencies Converter](#)
- [Understanding 164 Currency Converter results](#)
- [Currencies with few price points](#)

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**To find the 164 Currency Converter in the SiteSeeing frame**

The 164 Currency Converter is in **Currency Converters**



Click "164 CC" for  
the language you want